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Title: Getting on the net without getting snared.

Subject(s): INTERNET (Computer network)

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Author(s): Higgins, Kelly Jackson

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Best Part

Section: INTEROPERABILITY

GETTING ON THE NET WITHOUT GETTING SNARED

From high-tech nirvana to button-down business, can the Internet satisfy everyone?

For many businesses, it's no longer a question of whether to join the Internet--it's how.

Once hallowed ground to "techie researchers," academia and the government elite, the worldwide mesh of networks known as the Internet has come of age in the commercial realm. Big-name corporations, such as IBM, Bank of America National Trust & Savings Association, J.P. Morgan & Co. Inc. and U S West Advanced Technologies Inc., are setting up shop on the Internet. Some are merely dabbling at a little marketing, while others are poised to close sales and exchange money on-line.

But not so fast. This new venue for doing business poses hidden dangers. The Net's open, free-for-all atmosphere historically has made it vulnerable to unsavory hackers and rogue computer programs. And that doesn't sit well with corporate executives.

"You don't put anything on the World Wide Web that you wouldn't post on the lobby bulletin board," says Roy Perry, network architect at U S West Advanced Technologies, Denver, which maintains multiple storefront home pages on the Internet.

Die-hard Internet veterans might snicker, but the watchword of the new commercial generation of Internet users is strategic planning.

Marshall Rose, Internet guru and principal of electronic-commerce provider First Virtual Holdings Inc., says, "The first thing you have to do is step back and ask what business mission an Internet connection will support."

So how does a business get started on the Internet? Identify your goals.

First, determine what you want Internet access to help achieve, whether it be reducing courier and fax charges, exchanging electronic mail with clients or setting up a new sales and marketing channel.

Playing the Net

"Many users look at the Internet as a mysterious thing, and they often don't know what to do with it when they connect to it," says Joel Maloff, president of The Maloff Co., a Dexter, Ill., Internet consultancy. Some purchase too much access--for example, a dedicated T1, 1.544-megabit-per-second connection--when they may need only dial-up service, for instance. Or they purchase not enough, he says.

Maloff suggests that businesses write a request for proposals beforehand. "Even if you don't actually issue it, an RFP helps you think through what you want from the network," he says.

More often than not, Internet users start out with simple E-mail and almost overnight find themselves marketing their services on the Internet's World Wide Web, a network of *servers* on the Net that finds and accesses files. Businesses rapidly are setting up their own home-page screens, which are windows into their electronic storefront information and services, ranging from company data to actual sales.

Take J.P. Morgan, which signed onto Internet E-mail three years ago merely to get a quicker response from its networking and software vendors' technical support. When a router crashes on the trading floor, time is of the essence. Sending the software problem to the vendor by courier just wasn't fast enough.

"It would take four hours to get a fix. That's a significant drain on our business," says David Spector, vice president of distributed computing and infrastructure at J.P. Morgan. The company got an unexpected bonus with its Internet E-mail: lower support costs. "That's hard to quantify, but we do know we are able to solve problems faster now," says Spector. "By E-mail, we could send the technicians a dump of our software and they can get back to us in a matter of minutes."

Now, via the Web, the Wall Street firm offers its clients and consumers timely data and analysis on financial market risk. "In the beginning, we didn't really have a direct business goal for using the Internet," says Spector. "Now we are an information provider, which gives us a competitive advantage over other financial institutions," he adds.

Because of the sensitive nature of its business, J.P. Morgan, unlike many early Internet members, even devised a security plan before joining the Net.

A Costly Proposition

With so much at stake, good old-fashioned cost justification is slowly catching on among Internet planners and neophytes.

Maloff conducts a workshop for Internet hopefuls that forces them to sit down and cost-justify different Internet options. "This gives them a place to start," he says. He has devised a simple template for prospective Internet surfers that helps calculate their existing costs against the cost of an Internet connection. It's not totally scientific--there's room for intangibles and other issues. But it's a sure way for a business to project whether it's worthwhile going on the Net (see graphic, next page).

Today, it's difficult to find businesses with an actual return on investment calculations. "We haven't cost-justified our Internet connections yet, but we have gotten hard-dollar savings almost immediately in international fax calls and phone calls," says U S West's Perry.

At the Rood Nissan/Volvo car dealership in Seattle, owner Martin Rood says he is close to breaking even on his more than \$300,000 Internet investment. His dealership sports its own Web *server* where car buyers can peruse, dicker and even purchase cars. So far, the dealership has sold more than 40 cars via its Web site on Dealernet, a

Web service for dealers nationwide headed by Rood.

I Can Do What?

How viable is the Net? For business, the allure is the multiple roles the network can play: electronic post office, distribution channel, research and development tool and storefront, among others.

Although a few companies admit they are running scared to keep up with the Internet craze, most have an idea of which Internet resources they want to deploy. Not surprisingly, E-mail remains the most popular and widely used Internet application with access to more than 3 million computers worldwide, and the number is growing. It's especially useful for businesses with global interests. J.P. Morgan, for example, has used the Internet to correspond with economists in the former Soviet Union.

E-mail is a store-and-forward communication, meaning that it is sent and received like the U.S. mail--not in real time. Messages are forwarded to recipient *servers* and stored there until they are retrieved. Most E-mail services also offer on-line news groups like Usenet, akin to bulletin boards, with articles, information and views on specific topics ranging from health issues to politics.

Interactive services, such as the File Transfer Protocol and the popular World Wide Web, offer more instant gratification. FTP is the protocol used to transfer files among different computers on the Net. It is most commonly used to download files from a host system on the network.

Telnet is another service offered on the Net. The Telnet protocol lets a user log onto a host computer somewhere on the network to access data or software housed there.

With so much data floating around the Net, one of the biggest challenges is actually locating specific information and resources. Internet tools featuring names such as Archie and Gopher offer text-based search capabilities. "Archie goes around the network and finds the names of files and builds a database of them," says David Crocker, president of Brandenburg Consulting, Sunnyvale, Calif.

Gopher is a step up. It offers a hierarchical text-based menu for finding files. "With Gopher, you go through menu selections until you come to useful information," says Crocker. There are adjunct search tools for Gopher, such as Veronica and Jughead, which help search a Gopher *server*. (There are multiple Gopher *servers* on the Net.)

The simplest way to navigate the Internet is using the Web. The Web is based on two basic protocols: the Hypertext Transport Protocol (HTTP), which retrieves information such as compound documents, and Hypertext Markup Language (HTML), which uses hypertext links to define objects in the files. Here's how the Web works: Any topic that is blue and underlined in a Web document represents another document on that topic. By clicking the mouse, the Web takes you to that document.

What makes the Web so attractive is that it contains flashy graphics, sound and video. And work is under way to make the Web more interactive among multiple users. To participate in the Web, a user must run client software, such as Mosaic, most of which is available for free on the Net or packaged with most Internet software and services. The biggest problem with the Web, however, is that navigating it isn't so simple if you don't know where to find what you're looking for. There is no central *pointer* to all Web resources.

What's on the Menu?

Choosing from among the numerous types of Internet services and providers gets tougher all the time. The service options look like a Chinese restaurant menu and the field has swelled with a combination of existing providers such as Netcom On- Line Communications Services Inc., Performance Systems International Inc. and UUNET Technologies Inc. And still, there are start-ups and, most recently, major industry players like IBM, MCI Communications Inc. and Microsoft Corp.

Service options range from a simple e-mail box to high-speed--in the 10-megabit-per-second realm--metropolitan-area network service. On the low end, there's the shell account, a login to a provider's host machine. It lets multiple users work from one account to access Internet E-mail and news groups. All a user needs is a modem and the communications software. "It's most often used for users on the road," says Michael Byman, product manager for AlterNet, Uunet's Internet service. "You can do some file transfer and Telnet and text-only Web access," he says.

For companies that want just E-mail, a Unix-to-Unix Copy Protocol (UUCP) service offers just that, plus news groups and some file transfer. It requires a Unix host system on the user's site to send and receive mail, as well as a modem to dial up the provider's host system.

For more sophisticated users, there's a dial-up connection, called dial-up IP (Internet Protocol). IP is the network-layer protocol that runs the Internet. Dial-up IP options let users get direct access to the Net over basic phone lines. It's geared for the occasional Internet user.

This type of service uses either the Internet dial-up protocols or ISDN access. All it requires is a 14.4 kilobit-per-second or higher modem and Internet software, such as NetManage Inc.'s Chameleon or Spry Inc.'s Air Series. Dial-up IP offers access to all of the main Internet services including the Wide Area Information *Server* for keyword searches and WhoIs, a utility that gathers detailed information on other Internet users, such as their telephone numbers, business affiliations and addresses.

ISDN service makes dial-up access quicker--to the tune of 64 kilobits-per-second. That piece of the puzzle comes from the phone company, which is making ISDN more affordable for remote workers.

Users also can dedicate a phone line for dial-up IP, which is a bit more expensive but guarantees constant access to the Net.

Cadillac, Cadillac

The Cadillac of Internet services is the dedicated line. Speeds of 56 kilobits per second and T1 (1.544 megabits per second) are the most popular leased-line options, and frame-relay is catching on as a less expensive alternative to the leased line. The dedicated line is aimed at heavy Internet users. "This is for businesses that need a full-time connection. Their link should not be any slower than 56 Kbps," says Brandenburg Consulting's Crocker.

Dedicated Internet access does require some iron. The user site typically is equipped with a router and channel service unit/data service unit. The router serves as the connection point to the Internet, typically filtering and forwarding both incoming and outgoing traffic. The CSU/DSU sits at the periphery of the user's site, acting as a modem for the digital line. Most providers offer installation and configuration for the router and CSU/DSU hardware and software.

PSI, Reston, Va., in January rolled out a new Internet service concept: The MAN. Aimed at businesses in metropolitan areas that want to conduct commerce among themselves, the Internet MAN service comes with higher speed (up to 10 Mbps) and more secure access. "This lets us peer across our MAN internet without going out and touching the Internet infrastructure," says Jeffrey Shapard, product manager at PSI. "At the same time, it uses the same connection to go out onto the Internet" for other searches, he says.

Pricing for the PSI MAN service ranges from a \$5,000 sign-up fee plus \$1,200 monthly for T1 service, to a \$15,000 sign-up fee plus \$12,000 monthly for DS-3 or 45-megabit-per-second service. A promotional discount through the end of May waives the registration fees. The service initially is being offered in the New York, San Francisco Bay and Washington metropolitan areas.

So how long does it take to get up and running? That depends on the type of service. Dial-up service can take just a few minutes to load software and register the account on-line once the software is on site. Mean-while, dedicated lines take longer, usually about a month, while the telecommunications provider provisions the line and

the Internet provider installs the equipment.

Going On-Line

Selecting among providers depends on cost, technical know-how and whether you need national support. "There is no one provider that I recommend to all of my clients," says Maloff.

On-line service providers like America Online Inc., Vienna, Va., offer "mediated access" to the Net for companies that don't have the in-house technical know-how, says Crocker. AOL offers a limited terminal-type connection to the Net through its own network of on-line services. "These kinds of providers are appropriate for occasional Internet users," says Crocker.

Smaller regional providers, such as Pipeline Inc., New York, offer low-cost, low-tech Internet access--for as little as \$35 a month. "These providers are not as good at helping newbies," warns Maloff.

Retailers, which target basic services for lower economic areas, are another option. One such service, Sill-con Valley Public Access Link, charges only \$40 per year for unlimited use.

The main national providers--PSI, Uunet, Netcom and Advanced Network & Services (now part of AOL) offer coverage for large businesses with employees scattered nationwide. These providers offer installation and training, too, with extra charges for anything beyond basic setup. PSI, for example, offers three levels of support--the highest includes quarterly training seminars for customers.

"The best way to pick a provider is to find out which ones serve your area and do some price shopping and get a test account. Each has a different user interface and support," advises Maloff.

The Roadblocks

Still, the Internet is not the promised land for business. It's far from airtight and service is not yet universal. Security remains the biggest drawback for business. "One of the main goals at a company should be to develop a corporate security policy. And you have to know how to build a *firewall* and run it well," says U S West's Perry.

A *firewall* is a machine that sits between the user's internal network and the Internet, policing Internet traffic going in and out. Most large companies today keep their Web *servers* completely separate from their internal network as a further precaution. Brandenburg Consulting's Crocker advises businesses to deploy routers as well as *firewalls*. "Businesses need multiple layers of security, with machines that do nothing but IP routing and some that do filtering for the mail and Web *servers*," says Crocker.

Meanwhile, some of the key tools for conducting business on the Internet just aren't ready for prime time yet. Commerce is the buzzword among Internet business types, but to date, the ability to securely debit and credit your bank account and to run your credit card over the Net remains limited.

Videoconferencing on the Net also remains experimental, but new technology, such as Ubique Inc.'s Virtual Places architecture, lets multiple users interact live on the Web.

"When you access the Web with our software, you see and hear and interact with other people there," says Udi Shapiro, president of Ubique, San Francisco. The most likely applications of the software, now in beta, are virtual help desks and sales clerks assisting customers on-line.

Casting The Net

The following is a work sheet firms can use for cost-justifying an Internet connection. It is based on a typical Fortune 500 financial company.

Business Goal:

Reducing courier costs of sending out approximately one overnight letter per week to 500 branch offices nationwide.

Annual cost today (courier) \$190,000

Type of Internet service that best fits:	\$20,000/year	(includes tail circuit and network equipment)
56-kbps dedicated access, plus dial-up for remote offices	\$144,000/year	(for dial-up accounts at branch offices)

Internal costs (help desk, etc.)	\$10,000/year
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Security:	\$10,000	(firewall)
	\$5,000/year	(support)

Total Estimated Cost of an Internet connection	\$189,000
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Savings:	\$1,000
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Estimated soft dollar savings:	\$100,000[*]
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Improved efficiency, morale, E-mail available to branches at minimal cost, reduction in fax cost

* \$2/fax for 500 offices = \$1,000

2 times/week = \$2,000

x 50 weeks = \$100,000

Benefit-to-cost ratio:	Courier alone: $190,000/189,000 = 1.005$
	Courier & fax: $290,000/189,000 = 1.53$

Source: The Maloff Co.

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By KELLY JACKSON HIGGINS

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**Inset Article**

## **WEAVING ITS WEB**

One of the newest converts to the World Wide Web is Best Western International. Prospective travelers can browse through electronic brochures for 150 of Best Western's more than 3,400 hotels, consult traveler safety tips and, eventually, book their reservations via the Web.

But the hotel chain isn't actually connected to the Internet.

Like many newbies to the Web, Best Western--the Phoenix-based company with \$105 million in sales last year--is putting its marketing and sales on the Web through a third party. In this case, The Hotel Industry



Switch Co., an organization owned by the hotel industry, is doing the same. THISCo runs a switch that hooks 24,000 participating hotels--including Best Western, Hilton Hotels Corp. and Marriott International Inc.--to the TravelWeb site on the Web. Best Western left its home page and brochure design up to Cyber Publishing Inc., a Phoenix Web-site designer.

Being on the Web without actually being on the Internet is a popular way for first-time Net participants to ease into this realm of doing business. It's cheaper and lets businesses test-drive Internet marketing.

"From the point of view of the outside world, you are on the Net, but none of your machines is actually connected to it," says Marshall Rose, principal of Dover Beach Consulting, Mountain View, Calif., and First Virtual Holdings Inc., San Diego, an electronic-commerce provider. "It's what newcomers want if they don't know what they really want" out of the Net, he says.

Mary Swenson, managing director of worldwide reservations and marketing distribution for Best Western, says the company in the near future will join the Internet but first Best Western is constructing an army of *firewalls*. "We have individuals in the company on the Internet." The Internet--namely the Web--is key to Best Western's game plan for the future. "We perceive that consumer buying trends are moving toward on-line" commerce, she says. The Net also likely will serve as Best Western's first private WAN by the end of the year. "It would replace our mix of dial-up, dedicated circuits and satellite links."

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By Kelly Jackson Higgins

Inset Article

NETSPEAK: 10 TERMS TO KNOW

Gophers aren't squirrels and Webs have nothing to do with spiders, but the Internet has spawned a linguistic species all its own. Here are some common terms to get you started:

1. **Firewall:** A machine dedicated to securing the user's internal network from unauthorized Internet traffic. It typically sits between the user's internal network and the Internet, controlling which traffic goes in and out.
2. **FTP (File Transfer Protocol):** A protocol that transfers files among different computers. On the Internet, it is most commonly used to download files from a host system on the network.
3. **Gopher:** A search tool on the Net that offers a hierarchical textual menu system for finding files.
4. **Home page:** The first screen of a World Wide Web site. Often referred to as the "storefront," the home page offers *pointers* to specific information at that site.
5. **HTTP (Hypertext Transport Protocol):** The protocol used in the Web that retrieves other documents and information.
6. **HTML (Hypertext Markup Language):** Language that defines objects in files using hypertext links.
7. **IP (Internet Protocol):** The network layer protocol that sends and receives packets of data on the Internet and other TCP/IP-based networks.

8. Telnet: A protocol that lets a user machine log onto a host as a "dumb" terminal to access data and use programs on that system.

9. World Wide Web (WWW): A network of *servers* on the Internet that uses hypertext links to locate and access files and information in text, sound and video formats.

10. WHOIS: A TCP/IP utility that lets users query compatible *servers* for detailed information about other Internet users.

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